



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/612,254	07/07/2000	Masaharu Ikeda	JEL 31210	7590

7590 04/09/2004

Stevens Davis Miller & Mosher LLP  
Suite 850  
1615 L Street NW  
Washington, DC 20036

EXAMINER

LAO, LUN S

ART UNIT	PAPER NUMBER
----------	--------------

2643

DATE MAILED: 04/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/612,254

Applicant(s)

IKEDA, MASA HARU

Examiner

Lun-See Lao

Art Unit

2643

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 15 January 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### *Introduction*

1. This action is response to the amendment filed 01-15-2004. Claims 1,7,9,12-16, 20 and 22 have been amended and claims 1-22 are pending.

### ***Specification***

2. Acknowledgment is made of applicant's claim for foreign priority based on an application filed in 11-194016 on 07/08/1999. It is noted, however, that applicant has not filed a certified copy of the 09/612,254 application as required by 35 U.S.C. 119(b).

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 5-6, 13, 15, 20-21 are rejected under 35 U.S.C. 102(b) as being anticipated by Lininger (US PAT. 3,944,756).

Consider claim 1, Lininger teaches a condenser microphone apparatus comprising:

a movable electrode (diaphragm, see fig.2 (40)) which vibrates by an acoustic vibration;

Art Unit: 2643

a fixed electrode ( backplate, see fig.2, (56)) arranged so as to face said movable electrode (see col.2 line 58-col.3 line50);

a field effect transistor (see fig.3, (90)) that buffer-amplifying a voltage across said movable electrode (40) and a voltage across said fixed electrode (56);

a bypass capacitor (110,112) in which one end is connected to a signal output terminal of said field effect transistor (90) and the other end is connected to a common output (ground) terminal of said field effect transistor (90); and

a series resistor (106) inserted at least in one of an interval between said signal output terminal of said field effect transistor (90) and an output terminal (ground) of the apparatus (24) and an interval between said common output (ground) terminal of said field effect transistor (90) and a common output terminal (by pass 108 to ground) of the apparatus (see col.4 line 39-col.5 line 51).

Consider claims 5-6, Lininger teaches an apparatus of the series resistor (see fig.3, (106)) is installed a board provided outside of the apparatus (24); and an apparatus of an electrostatic shield (see fig.3 (24)) is provided at least in one of an interval between said fixed electrode (56) and said signal output terminal (82,88) of the apparatus (24), an interval between said fixed electrode (56) and said bypass capacitor (110,112), and an interval between said fixed electrode (56) and said series resistor (106).

Consider claim 13, Lininger teaches a connecting apparatus which is connected to a connecting unit comprising:

Art Unit: 2643

a movable electrode (diaphragm see fig.2, (40)), which vibrates by an acoustic vibration;

a fixed electrode (backplate see fig.2, (50)) arranged so as to face said movable electrode (40);

a field effect transistor (see fig.3, (90)) that buffer-amplifying a voltage across said movable electrode (40) and a voltage across said fixed electrode (56); and a bypass capacitor (110,112) in which one end is connected to a signal output terminal of said field effect transistor (90) and the other end is connected to a common output (ground) terminal of said field effect transistor (90), wherein said connecting apparatus has a series resistor (106) inserted at least in one of an interval between said signal output terminal of said field effect transistor (90) and an output terminal of the apparatus (24) and an interval between said common output (ground) terminal of said field effect transistor (90) and a common output (pass 108 to ground) terminal of the apparatus (24 and see col.4 line 39-col.5 line 51).

Consider claim 15, Lininger teaches a connecting apparatus which is connected to a condenser microphone unit comprising:

a movable electrode (diaphragm see fig.2, (40)), which vibrates by an acoustic vibration;

a fixed electrode (backplate see fig.2, (50)) arranged so as to face said movable electrode; and

Art Unit: 2643

a field effect transistor (90) that buffer-amplifying a voltage across said movable electrode (diaphragm see fig.2, (40)) and a voltage across said fixed electrode (backplate see fig.2, (50)),

wherein said connecting apparatus (24) has a bypass capacitor (110,112) in which one end is connected to a signal output terminal of field effect transistor (90) and the other end is connected to a common output (ground) terminal of said field effect transistor (90), and

a series resistor (106) inserted at least in one of an interval between said signal output terminal of said field effect transistor (90) and an output terminal of the apparatus (24) and an interval between said common output (ground) terminal of said field effect transistor (90) and a common output (ground) terminal of the apparatus (27 and see col.4 line 39-col.5 line 51).

Consider claims 20-21, Lininger teaches an apparatus of the series resistor (see fig.3 (106)) comprises a spring (86) terminal connector constructed by a resistive spring material (see col.3 line 50-col.4 line 61), and an apparatus of the series resistor (see fig.3, (106)) inherently is formed by adhering a resistor onto a surface (circuit board) or an inner layer of a wiring circuit board.

### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

Art Unit: 2643

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 2 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lininger (US PAT 3,944,756) in view of Kubota (US PAT. 5,635,670).

Consider claims 2, 18, Lininger does not explicitly teach the at least one of said series resistor (see fig.3 (106)) and that said bypass capacitor (110,112) is made of a multi-Layer film.

However, Kubota teaches the at least one of series resistor and said bypass capacitor is made of a multi-Layer film (see col.1 lines 18-25).

Therefore, it would have been obvious to one of ordinary skill in the art at the time invention was made to combine the teaching of Lininger and Kubota to provide a multilayer electronic component which can reduce arrangement pitches for external electrodes.

7. Claims 3-4 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lininger (US PAT 3,944,756) in view of Takuya (US PAT. 4,525,817).

Consider claims 3-4, Lininger does not explicitly teach the series resistor (see fig.3, (106)) is formed by adhering a resistor onto a surface or an inner layer of a wiring circuit board; and an apparatus of the series resistor (see fig.3, (106)) inherently is formed by filling a resistor into a viahole (78) of a wiring circuit board (see fig.3).

However, Takuya teaches an apparatus of the series resistor is formed by adhering a resistor onto a surface or an inner layer of a wiring circuit board (see col.1

Art Unit: 2643

line 60-col.2 line 35); and an apparatus of the series resistor is formed by filling a resistor into a viahole (see fig.3a) of a wiring circuit board (col.3 lines 20-68).

Therefore, it would have been obvious to one of ordinary skill in the art at the time invention was made to combine the teaching of Lining and Tauya to provide a an acoustic resistor capable of affording a desired acoustic impedance to the tone aperture portion of an electro-acoustic transducer.

Consider claim 17, Lining does not explicitly teach the series resistor (see fig.3 (106)) is made of a resistive fiber or a conductive rubber.

However, Takuya teaches an apparatus of the series resistor is made of a resistive fiber or a conductive rubber (see col3 lines 20-67).

Therefore, it would have been obvious to one of ordinary skill in the art at the time invention was made to combine the teaching of Lining and Tauya to provide an acoustic resistor capable of affording a desired acoustic impedance to the tone aperture portion of an electro-acoustic transducer.

8. Claims 7, 9-12, 14 and 16, 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Papadopoulos (US PAT 6,504,937) in view of Sondermeyer (US PAT. 5,197,102).

Consider claim 7, Papadopoulos teaches a condenser microphone apparatus comprising:

a movable electrode (see fig.1 (102 electret diaphragm)) which vibrates by an acoustic vibration;



Art Unit: 2643

a fixed electrode (102, such as backplate, a source terminal coupled to ground) arranged so as to face said movable electrode (see fig.1 (102 electret diaphragm));

amplifying means (see fig.1, Q1, JFETN) for buffer-amplifying a voltage across said movable electrode (see fig.1 (102 electret diaphragm)) and said fixed electrode, (102, a source terminal coupled to ground and see abstract); said amplifying means (Q1) inherently for providing the amplified voltage to a signal out transmission line (102, a source terminal coupled to ground and see abstract);

a bypass capacitor (C3) in which one end is connected to a signal output terminal (drain) of said amplifying means (Q1) and the other end is connected to a common output (ground) terminal of said amplifying means (Q1); and a serial circuit of a blocking capacitor (C2) and a damping resistor (R2 (R2 is influence of diaphragm's moving)), in which one end is connected to said signal output terminal (drain) of said amplifying means (Q1) and the other end is connected to the common output (ground) terminal of said amplifying means (Q1 and see col.1 line 55-col.2 line 31), said bypass capacitor (C3) operating to bypass a high frequency signal (high frequency to the ground and low frequency bypass (R2) resistor, because, capacitor C3 and resistor R2 is low pass filter) from an external circuit (102 or 104)(see col.1 line 55-col.2 line 31), comprising said signal output transmission line said bypass capacitor (C3), and said serial circuit (see col.1 line 55-col.2 line 31), but Papadopoulos fails to teach a serial circuit operating to damp a parallel resonance of an equivalent circuit.

However, Sondermeyer teaches a serial circuit (see fig.1 (70,74)) operating to damp a parallel resonance of an equivalent circuit (see col.5 line 25-col.6 line 62).

Therefore, it would have been obvious to one of ordinary skill in the art at the time invention was made to combine the teaching of Popadopoulos and Sondermeyer to provide a output impedance of the amplifier is reduced or adjusted in order to decrease the damping factor.

Consider claims 9-12, Papadopoulos teaches an apparatus of the damping resistor (see fig.1, R2 (R2 is influence of diaphragm's moving)) inherently is formed by adhering a resistive material onto a surface (circuit board) or an inner layer of a wiring circuit board; and an apparatus of the serial circuit of said blocking capacitor (fig.1, (C2)) and said damping resistor (R2 (R2 is influence of diaphragm's moving)) inherently is installed on a board provided outside of the apparatus (102); and an apparatus (see fig.1, (102)) of an electrostatic shield is provided at least in one of an interval between said fixed electrode (102, such as backplate, a source terminal coupled to ground) and a signal output terminal of the apparatus (102), an interval between said fixed electrode(102, such as backplate, a source terminal coupled to ground) and said blocking capacitor (C2), and an interval between said fixed electrode (102, such as backplate, a source terminal coupled to ground) and said damping resistor (R2 (R2 is influence of diaphragm's moving and see abstract)); and an apparatus of the amplifying means (Q1) is constructed by a field effect transistor (see abstract).

Consider claim 14, Papadopoulos teaches a connecting apparatus which is connected to a condenser microphone unit comprising:

a movable electrode (see fig.1 (102 electret diaphragm)) which vibrates by an acoustic vibration (see col.1 line 53-col.2 line3);

Art Unit: 2643

a fixed electrode (102, such as backplate, a source terminal coupled to ground) arranged so as to face said movable electrode (see fig.1 (102 electret diaphragm)); amplifying means (see fig.1, Q1, JFETN) for buffer-amplifying a voltage across said movable electrode (see fig.1 (102 electret diaphragm)) and said fixed electrode, (102, a source terminal coupled to ground and see abstract); said amplifying means (Q1) inherently providing the amplified voltage to a signal out transmission line (see abstract);

a bypass capacitor (C3) in which one end is connected to a signal output terminal (drain) of said amplifying means (Q1) and the other end is connected to a common output (ground) terminal of said amplifying means (Q1); and a serial circuit of a blocking capacitor (C2) and a damping resistor (R2 (R2 is influence of diaphragm's moving)), in which one end is connected to said signal output terminal (drain) of said amplifying means (Q1) and the other end is connected to the common output (ground) terminal of said amplifying means (Q1 and see col.1 line 55-col.2 line 31), said bypass capacitor (C3) operating to bypass a high frequency signal (high frequency to the ground and low frequency bypass (R2) resistor, because, capacitor C3 and resistor R2 is low pass filter) from an external circuit (102 or 104)(see col.1 line 55-col.2 line 31),

wherein said connecting apparatus (102) has a serial circuit of a blocking capacitor (C2) and a damping resistor (R2 (R2 is influence of diaphragm 's moving)), in which one end is connected to said signal output terminal (drain) of said amplifying means (Q1) and the other end is connected to the common output (ground) terminal of said amplifying means (Q1 and see col.1 line 55-col.2 line 33); and comprising said

Art Unit: 2643

signal output transmission line said bypass capacitor (C3), and said serial circuit (see col.1 line 55-col.2 line 31), but Papadopoulos fails to teach a serial circuit operating to damp a parallel resonance of an equivalent circuit.

However, Sondermeyer teaches a serial circuit (see fig.1 (70,74)) operating to damp a parallel resonance of an equivalent circuit (see col.5 line 25-col.6 line 62).

Therefore, it would have been obvious to one of ordinary skill in the art at the time invention was made to combine the teaching of Papadopoulos and Sondermeyer to provide a output impedance of the amplifier is reduced or adjusted in order to decrease the damping factor.

Consider claim 16, Papadopoulos teaches a connecting apparatus which is connected to a condenser microphone unit comprising:

- a movable electrode (see fig.1 (102 electret diaphragm)) , which vibrates by an acoustic vibration;

- a fixed electrode arrange (102, such as backplate, a source terminal coupled to ground) so as to face said movable electrode (see fig.1 (102 electret diaphragm)) ; and

- amplifying means (see fig.1 Q1) for buffer-amplifying a voltage across said movable electrode (see fig.1 (102 electret diaphragm)) and said fixed electrode (102, such as backplate, a source terminal coupled to ground and see abstract), said amplifying means (Q1) inherently providing the amplified voltage to a signal out transmission line (see abstract);

wherein said connecting apparatus (102) has a bypass capacitor (C3) in which one end is connected to a signal output terminal (drain) of said amplifying means (Q1)

Art Unit: 2643

and the other end is connected to a common output (ground) terminal of said amplifying means (Q1), said bypass capacitor (C3) operating to bypass a high frequency signal (high frequency to the ground and low frequency bypass (R2) resistor, because, capacitor C3 and resistor R2 is low pass filter) from an external circuit (102 or 104)(see col.1 line 55-col.2 line 31), and

a serial circuit of a blocking capacitor (C2) and a damping resistor (R2 is influence of diaphragm 's moving), in which one end is connected to said signal output terminal of said amplifying means (Q1) and the other end is connected to the common output (ground) terminal of said amplifying means (Q1 and see col.1 line 55-col.2 line33), and comprising said signal output transmission line said bypass capacitor (C3), and said serial circuit (see col.1 line 55-col.2 line 31), but Papadopoulos fails to teach a serial circuit operating to damp a parallel resonance of an equivalent circuit.

However, Sondermeyer teaches a serial circuit (see fig.1 (70,74)) operating to damp a parallel resonance of an equivalent circuit (see col.5 line 25-col.6 line 62).

Therefore, it would have been obvious to one of ordinary skill in the art at the time invention was made to combine the teaching of Papadopoulos and Sondermeyer to provide a output impedance of the amplifier is reduced of adjusted in order to decrease the damping factor.

Consider claim 22, Papadopoulos teaches an apparatus of the damping resistor (see fig.1, R2 (R2 is influence of diaphragm 's moving)) inherently is formed by adhering a resistive material onto a surface (circuit board) or an inner layer of a wiring circuit board (see fig.1).

9. Claims 8 and 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Papadopoulos (US PAT 6,504,937) as modified by Sondermeyer (US PAT. 5,197,102) as applied to claims 7, 14 and 16 above, and further in view of Kubota (US PAT. 5,635,670).

Consider claims 8 and 19, Papadopoulos does not explicitly teach an apparatus at least one of said bypass capacitor, said damping resistor, and said blocking capacitor is made of a multilayer film.

However, Kubota teaches an apparatus at least one of said bypass capacitor, said damping resistor, and said blocking capacitor is made of a multilayer film (see col.1 lines 18-25).

Therefore, it would have been obvious to one of ordinary skill in the art at the time invention was made to combine the teaching of Papadopoulos and Sondermeyer into the teaching of Kubota to provide a multilayer electronic component which can reduce arrangement pitches for external electrodes.

### ***Response to Arguments***

10. Applicant's arguments with respect to claims 1-22 have been considered but are moot in view of the new ground(s) of rejection.

Regarding applicant's argument that Lininger fails to anticipate, as recited in claim 1, a bypass capacitor in which one end is connected to a signal output terminal of said field effect transistor and the other end is connected to a common output terminal

Art Unit: 2643

of said field effect transistor (remarks, page 13, lines 30 - page 14, line 3), the examiner respectfully disagrees. Lininger teaches a bypass capacitor (see fig.3 110,112) in which one end is connected to a signal output terminal (top line) of said field effect transistor (90) and the other end is connected to a common output (the bottom line, ground) terminal of said field effect transistor (90)(by said pass 108 resistor to the ground and it still connects to the ground (common output). Therefore, Lininger meets the limitation as claimed.

Applicant further argued that Lininger does not disclose a capacitor connected between the source and drain terminals of the field effect transistor. This, however, is not recited in the claim.

### ***Conclusion***

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

Art Unit: 2643

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

13. The prior art of record and not relied upon is considered pertinent to applicant's disclosure. Tanaka et al (US PAT 5,588,065) is recited to show other related the condenser microphone apparatus and its connecting apparatus.

14. Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:(703) 872-9306


Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA., Sixth Floor (Receptionist).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lao,Lun-See whose telephone number is (703) 305-2259. The examiner can normally be reached on Monday-Friday from 8:00 to 6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Curtis Kuntz, can be reached on (703) 305-4708.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 whose telephone number is (703) 306-0377.

Lao,Lun-See  
Patent Examiner  
US Patent and Trademark Office  
Crystal Park 2  
(703305-2259)

  
**DUC NGUYEN**  
**PRIMARY EXAMINER**



Application/Control Number: 09/612,254  
Art Unit: 2643

Page 16